

# *Meaning and framing: the semantic implications of psychological framing effects*

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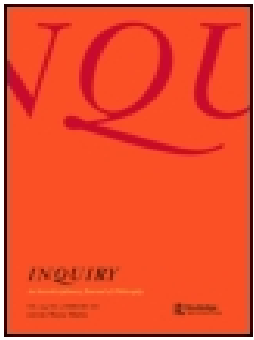
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# Meaning and framing: the semantic implications of psychological framing effects

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## ABSTRACT



I use the psychological phenomenon of ‘attribute framing’ as a case study for exploring philosophical conceptions of semantics and the semantics-pragmatics divide. Attribute frames are pairs of sentences that use contradictory expressions to predicate the *same* property of an individual or object. Despite their equivalence, pairs of attribute frames have been observed to induce systematic variability in hearers’ responses. One explanation of such framing effects appeals to the distinct ‘reference point information’ conveyed by alternative frames. Although this information is taken to be *pragmatic*, a live debate in the philosophy of language concerns the extent to which pragmatic information can really be held apart from semantics. Therefore, in this article I examine whether – and how – reference point information might be thought to intrude on the semantics of an attribute frame. I describe two ways in which the information might be considered broadly semantic, due to its being *directly communicated* or *conventional*. However, I argue that the framing data in fact support a narrower conception of semantics, and a semantics-pragmatics distinction that separates standing sentence meaning from enriched communicated meaning.

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**KEYWORDS** Attribute framing; framing effects; semantics; pragmatics; communication; convention

## 1. Introduction

In this article I use the psychological phenomenon of ‘attribute framing’ as a case study for exploring philosophical conceptions of semantics, and the semantics-pragmatics divide. Attribute framing involves predicating the same property of an entity through the use of contradictory expressions in the predicate. For example, a basketball player might be described as having ‘made 60%’ of his shots or, equivalently, as having ‘missed 40%’.

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Intuitively, the first way of framing the information makes the basketball player sound much better, and this is borne out in empirical studies (as will be discussed in §2). In order to explain the systematically different effects of speakers' framing choices on hearers' judgements, it has been argued that alternative frames pragmatically convey distinct information (specifically, distinct 'reference point information', as will be discussed in §3). The question I address here is whether that information can sensibly be held apart from the frames' *semantics*. An ongoing debate in the philosophy of language concerns the scope of semantics and the location of the semantics-pragmatics divide; specifically, to what extent can meanings that are standardly treated as 'semantic' be insulated from *pragmatic* effects? Various stances adopted in this debate call for a re-examination of the reference point information conveyed by alternative frames. I will argue that, although it *could* be classified as semantic information, it *shouldn't*; that would obscure the distinction we need in order to explain framing effects. As such, the case study of attribute framing supports a relatively *minimal* conception of semantics.

The structure of the discussion is as follows: in §2 I describe the puzzle presented by attribute framing effects. In §3 I set out an ostensibly pragmatic solution that has been developed in the psychological literature – the 'reference point hypothesis'. In §§4–6 I assess whether – and how – the 'reference point information' posited by this account might be thought to intrude on the semantic meaning of an attribute frame.<sup>1</sup> Specifically, in §4 I reject the idea that reference point information could be traced back to a sentence's *standing meaning*; in §5 I consider how reference point information might be thought to *freely affect* what is directly communicated by a particular uttered frame; and in §6 I consider whether that information could be *conventional*, without necessarily contributing to truth-conditional content. I accept that, in principle, the reference point information conveyed by attribute frames could potentially be classified as broadly semantic, in one or other of the two senses considered. However, I conclude in §7 by arguing that neither of these 'expansive' semantic treatments can be motivated by the framing phenomena themselves, which instead require us to distinguish between the standing meanings of frames and the reference point information they tend to convey when uttered. On the contrary, then, the case study of attribute

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<sup>1</sup>I assume throughout that it makes sense to talk about *semantic meaning* (and not just *speaker meaning*). However, I will remain neutral on the question of whether semantic meanings always (or ever) constitute complete, truth-evaluable propositions (for further discussion, see: [Bach 2001, 2006; Borg 2012; Fisher 2019; Harris, *forthcoming*]).

framing gives us a *pro tanto* reason for conceiving of semantics relatively *minimally*: it invites us to draw the semantics-pragmatics boundary between uttered sentences' standing meanings, on the one hand, and their further enriched communicated meanings on the other.

## 2. Attribute framing

Attribute frames are pairs of sentences that predicate the same property of an individual or object whilst using contradictory expressions in the predicate. Take for example, the following pair of sentences, used to describe a basketball player:

(1) The player made 60% of his shots.

(2) The player missed 40% of his shots.

The verb phrases 'made his shots' and 'missed his shots' are contradictory, since shots are either missed or made (with no third possibility). However, because the degree modifiers '60%' and '40%' are complementary (summing to 100%) the predicates end up being logically equivalent overall.<sup>2</sup> Under either frame, then, the player's performance can be represented as being located at the same point on the scale below. As we move from left to right along this scale, an increase in the proportion of shots made entails a corresponding reduction in the proportion of shots missed (and vice versa as we move from right to left) (Figure 1).

Despite the logical equivalence of the frames, the player intuitively sounds better when described using the first frame rather than the second.<sup>3</sup> Experimental data confirm that a player is typically judged more valuable to a team when he is described using frame (1) than when he is described using frame (2) (Leong et al. 2017). The variability of participants' evaluative judgements in this case exemplifies the 'attribute framing effect' (Levin, Schneider, and Gaeth 1998), which I define as follows:<sup>4</sup>

<sup>2</sup>Unless, of course, the number expressions are semantically lower-bounded, such that '60%' means *at least* 60% while 40% means *at least* 40%. Although Mandel (2014) presents evidence that framing effects depend on lower-bounded interpretations of number expressions, other psychologists have failed to confirm his results (including Chick, Reyna, and Corbin 2016). I suggest that this factor is unlikely to explain the attribute framing effect in its entirety (even if it does so in part). Therefore, in order to focus on the unexplained portion of the effect, I will proceed as if the number expressions are semantically bilateral (so that 60% means 'exactly 60%' and 40% means 'exactly 40%').

<sup>3</sup>Indeed, this feeling can persist even once the frames are recognised to be equivalent. This leads Tversky and Kahneman (1986, 260) to write: 'In the persistence of their appeal, framing effects resemble visual illusions more than computational errors'.

<sup>4</sup>Since the current discussion is limited to attribute framing, I leave aside classic 'risky choice' framing paradigms of the kind initially investigated by Tversky and Kahneman (1981, 1986). I also leave aside the



**Figure 1.** Shots made/missed.

*Attribute framing effect:* A systematic shift in hearers' judgements, brought about by the speaker's use of one or other of a pair of attribute frames (even while all aspects of the wider context are held constant).

Myriad psychological studies have revealed attribute framing effects (for a survey, see (Levin, Schneider, and Gaeth 1998); some later studies are discussed below). On the face of it, such effects present a puzzle: why do we respond in systematically different ways to frames that predicate exactly the same property of an entity? Various solutions to this puzzle have been put forward in the psychological literature. Here I focus on the 'information leakage' account, according to which the speaker's choice of attribute frame conveys some additional contextual information (Leong et al. 2017; McKenzie and Nelson 2003; Sher and McKenzie 2006, 2008, 2011).<sup>5</sup>

### 3. Reference points

McKenzie and others have proposed that, by using one or other of a pair of contradictory expressions, the speaker of an attribute frame indicates that the subject of predication possesses the corresponding property to a *relatively high degree*.<sup>6</sup> In their own words:

McKenzie and Nelson (2003) hypothesized the following regularity in linguistic behavior: (1) In describing a fixed state of proportionate affairs, speakers are more likely to describe the proportion in terms of "X1" when X1 has increased relative to the reference point proportion (the norm, or what one would have expected) than when X1 has decreased relative to the reference point. (2)

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'goal framing' paradigms discussed by Levin, Schneider, and Gaeth (1998). Although I believe the arguments I put forward may extend to those paradigms too, this is not something I will try to show here.

<sup>5</sup>Although I cannot argue for this fully here, I consider the information leakage account to be more attractive than its main competitor, the associationist account put forward by Levin and others (Levin 1987; Levin and Gaeth 1988; Levin, Schneider, and Gaeth 1998). Whereas the associationist account only extends to pairs of frames with opposing positive or negative valence, the information leakage account can also capture the effects of evaluatively neutral frames.

<sup>6</sup>In fact, according to the more general version of their account, the speaker indicates merely that the property is *salient in some respect*. Sometimes this is because it is possessed to a relatively high degree (as per the reference point hypothesis); other times, it is suggested, the speaker may be conveying an 'implicit recommendation'. I will focus on the reference point hypothesis here, since I consider it to have the strongest theoretical and empirical basis. In principle, though, my argument could be extended to a more general, or pluralistic, version of the information leakage account.

Listeners are sensitive to this regularity—that is, listeners are capable of correctly inferring the reference point proportion from the speaker's choice of proportion-frame. (Sher and McKenzie 2006, 471)<sup>7</sup>

To illustrate, it is helpful to run through one of the experiments reported by McKenzie and Nelson (2003). In this experiment participants were found to make systematically different judgements about the *prior* contents of a glass, based on how its *current* contents were described – in terms of the proportion 'full' or 'empty'. Below is an example vignette, which was presented to participants in one of six experimental conditions:

Imagine that Mary was sitting at her kitchen table with a glass in front of her. She left the room briefly and came back to find that the contents of the glass had changed. When asked to describe the glass now, Mary said, "The glass is half full." Given how Mary chose to describe the glass after its contents had changed, please choose the statement below in terms of what you think was most likely true about the glass before its contents changed.

Participants were then given the following options:

The glass was full before its contents changed.

The glass was empty before its contents changed.

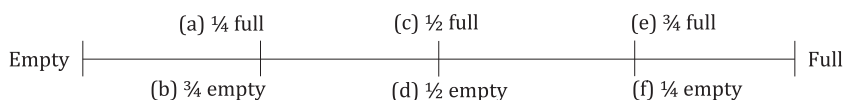
In two other experimental conditions, the degree modifier used by Mary was 'a quarter' or 'three quarters' rather than 'half'. Each of these 'full' framing conditions was mirrored by a condition in which Mary used the contrary adjective, 'empty', with a complementary degree modifier. All six conditions (a-f) are presented on the scale below (Figure 2).<sup>8</sup>

Within each pair of frames (a and b, c and d, e and f) both frames describe the same *current* content of the glass. Nevertheless, it was found that participants made systematically different judgements about the *prior* content of the glass, depending on whether Mary used a 'full' or 'empty' frame. Specifically, participants in conditions a and c (where Mary used 'full' frames) were more likely to say the glass was previously

<sup>7</sup>The formulation here implies a temporal component, describing the proportion as *having increased* relative to a reference point. However, in other studies, there is no temporal relation between the reference point and the subject of predication. For example, in the study by Leong et al. (2017) the reference point is taken to be an *average*, or *typical*, individual. Therefore, I prefer to formulate the hypothesis in temporally neutral terms.

<sup>8</sup>Note that, according to one prominent analysis of gradable adjectives, 'full' and 'empty' are absolute gradable adjectives with 'closed' scales, i.e. scales with fixed endpoints (Kennedy and McNally 2005). Therefore, the glass's being 'full' *simpliciter* means that it contains water to a maximal degree, while its being 'empty' *simpliciter* means that water is absent from the glass to a maximal degree. Once 'full' and 'empty' are combined with complementary degree modifiers, however, they map to points along a scale, such that any increase in fullness entails an equal reduction in emptiness (and vice versa), similarly to the pair of predicates considered earlier.





**Figure 2.** Full/empty framing conditions.

*empty* than participants in conditions b and d (where Mary used ‘empty’ frames). The difference between conditions c and f was not statistically significant, although the trend was in the same direction (Table 1).<sup>9</sup>

The reference point hypothesis is able to capture the data: when Mary uses an attribute frame like (3):

(3) The glass is half full.

the audience infers something like the information in (3a), which I will call the ‘reference point information’:

(3a) The glass is *relatively full*.<sup>10</sup>

Conversely, when Mary uses the alternative frame:

(4) The glass is half empty.

the audience infers the following reference point information:

(4a) The glass is *relatively empty*.

I take it that the salient reference point in McKenzie and Nelson’s experimental scenario is the *prior state* of the glass.<sup>11</sup> Taking account of this, we can posit the following, more specific, versions of the reference point information:

(3b) The glass is *fuller than before*.

(4b) The glass is *emptier than before*.

<sup>9</sup>These findings concerning ‘full’ and ‘empty’ frames are further corroborated by experiments reported by Sher and McKenzie (2006) and Ingram, Hand, and Moxey (2014). The data from each of these studies suggest that ‘empty’ frames conveyed reference point information more strongly than ‘full’ frames. This is likely to be due to ‘empty’ being generally ‘marked’. For further discussion of the concept of markedness, see (Lehrer 1985). For current purposes I set this issue aside.

<sup>10</sup>Strictly speaking, the informational content should be: ‘*The speaker believes that the glass is relatively full*’. However, for ease of exposition, I will assume that the hearer (taking the speaker’s belief to be reliable) infers the further content that the glass *is* relatively full.

<sup>11</sup>In general, though, salient reference points need not always be prior states. In other scenarios a range of other entities could fulfil that role. I will not say much here about what makes an entity suitably salient, although I think this could plausibly depend on a wide range of factors, including: the discourse context; the nature of the subject of predication; and, perhaps, subjective factors of the kind discussed by Verheyen, Dewil, and Égré (2018).

**Table 1.** Full/empty framing effects.

Mary's frame	% participants saying the glass was full before
(a) $\frac{1}{4}$ full	35%
(b) $\frac{3}{4}$ empty	94%
(c) $\frac{1}{2}$ full	50%
(d) $\frac{1}{2}$ empty	80%
(e) $\frac{3}{4}$ full	56%
(f) $\frac{1}{4}$ empty	79%

It should be noted that the reference point information specified in (3b) and (4b) need not be inferred by hearers *absolutely* but merely assigned *greater probability*, given the speaker's choice of frame. Thus, when a speaker uses (3), hearers tend to treat the situation described by (3b) as being *more probable* than they would have done had the speaker used (4). (And, conversely, a speaker's use of (4) leads hearers to assign greater probability to the situation described by (4b) than they would have done had the speaker used (3)).<sup>12</sup> For ease of exposition, I will ignore this subtlety and proceed as though hearers inferred (3b) and (4b) *absolutely*. However, nothing in the argument hangs on this simplification. Indeed, in §§6–7 I will suggest that the probabilistic nature of the reference point information adds further weight to my claim that reference point information is pragmatic rather than semantic.

Simplifying a little, then, the alternative frames (3) and (4) can be understood as establishing diametrically opposed relations between the glass and the reference point. They do so because the expressions 'full' and 'empty' lie at opposite ends of the scale.<sup>13</sup> Thus, under frame (3) the reference point lies in the region represented by R1 in Figure 3 below, whereas under frame (4) the reference point lies in the region R2:<sup>14</sup>

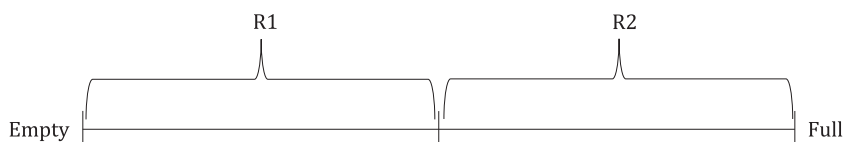
This would explain why McKenzie and Nelson's experimental participants were more likely to think the glass was *previously empty* when Mary used a 'full' frame than when she used an 'empty' frame: Mary's use of the 'full' frame indicates that the glass is now *fuller* than before, whereas her use of the 'empty' frame indicates that it is now *emptier* than before.<sup>15</sup>

<sup>12</sup>For an explicit formulation in terms of Bayesian conditional probabilities, see (Sher and McKenzie 2008, 2011).

<sup>13</sup>Geurts (2013) makes a similar observation about scale reversal in cases of framing but provides a different explanation of the shifts in hearers' judgements. Although I cannot assess his alternative account here, I note that it is less powerful than the reference point hypothesis in the sense that it applies only to frames with positive or negative valence, not to those which are evaluatively neutral.

<sup>14</sup>It is not entirely clear, then, why the experimenters used *maximal* reference points (i.e. the glass being *completely* full or *completely* empty before) rather than mere relative states (i.e. the glass being *fuller* or *emptier* before). Nevertheless, their results still succeed in demonstrating the relevant effect, as described next.

<sup>15</sup>McKenzie and Nelson present complementary evidence that *speakers* are sensitive to the same reference point information when choosing whether to use one frame or the other. Their data suggest that, when



**Figure 3.** Full/empty reference point information.

We are now in a position to extend the reference point hypothesis to the example of the basketball player, to explain why he should be judged more valuable to a team when his performance is described in terms of shots ‘made’ rather than ‘missed’. According to the reference point hypothesis, frame (1) tends to carry the following reference point information:

(1a) The player made *a relatively large proportion of his shots*.

whereas (2) tends to carry the reference point information in (2a):

(2a) The player missed *a relatively large proportion of his shots*.

Under frame (1), then, the player is understood to have performed relatively *well* compared to the reference point (let’s assume this is the average, or typical, player in the relevant domain). In contrast, under frame (2) he is understood to have performed relatively *badly*. Therefore, he is evaluated more favourably under (1) than under (2).<sup>16</sup> Note that while both frames are still taken to convey the same information about the player himself, they shift our assumptions about the reference point’s location on the scale, so that the player’s performance ends up seeming better or worse *by comparison*.<sup>17</sup> Stated generally, the same subject can seem better under one frame than another just in virtue of being evaluated relative to quantitatively distinct alternatives.

Further support for the reference point hypothesis comes from a series of other experimental studies, deploying various different pairs of frames

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inferring reference point information, hearers are reliably tracking speakers’ beliefs. This may give us some reason to analyse reference point information as being genuinely *communicated* (rather than merely a downstream ‘perlocutionary’ effect of the utterance, in Austin’s sense [Austin 1975]). Clearly, though, the question of whether reference point information is pragmatically communicated, and not just inferable, is one which merits further discussion. Here I will simply assume that it is a pragmatic effect, as the proponents of the reference point hypothesis do, and focus on showing why it should *not* be considered to intrude on *semantics*.

<sup>16</sup>Leong et al. (2017) present empirical evidence that reference point information is, in fact, playing the hypothesised causal role in this particular framing effect.

<sup>17</sup>An implication is that, where audiences already hold independent information about the reference point, they may be less susceptible to framing effects. The second experiment reported by Leong et al. (2017) suggests that this is indeed the case.

(Honda and Yamagishi 2017; McKenzie and Nelson 2003; Sher and McKenzie 2006; Teigen and Karevold 2005). In what follows, I will assume that the reference point hypothesis accounts for at least some portion of the attribute framing effect. I characterise the hypothesis as follows:

*Reference point hypothesis:* In virtue of their including one of two contradictory predicate expressions, attribute frames tend to convey that the subject of predication instantiates the property corresponding to that expression to a high degree, relative to the most salient reference point.

Sher & McKenzie have explicitly described their information leakage account as ‘pragmatic’, concerning as it does ‘the ways in which speakers typically select utterances and convey meaning in human conversational environments’ (Sher and McKenzie 2008, 83).<sup>18</sup> For some, this might already imply that reference point information cannot be classified as *semantic*. However, a live debate in the philosophy of language concerns the ‘intrusion’ of pragmatic effects on meanings traditionally classed as semantic. Stretching back over the last half a century, as exemplified in the work of Lewis, Kaplan, and Stalnaker (among others), semantics has concerned itself with the truth-conditional contents speakers express when they utter sentences. However, many have argued that such contents will often (perhaps always) depend on a variety of extra-linguistic factors traditionally classified as *pragmatic*; these include, for example, relations to entities in the wider context of utterance, or facts about speakers’ communicative intentions. It is clear how such arguments are immediately applicable to a class of expressions like ‘I’, ‘today’ and ‘this’, which refer to different entities on different occasions of use. More radically, similar arguments have been extended to all kinds of other expressions that are used by speakers to say different things on different occasions (Bach 1994; Carston 2002; Recanati 2004, 2010; Sperber and Wilson 1995; Travis 2008).

Meanwhile, some theorists have sought to expand the scope of semantics in another direction, to include all kinds of *conventional* effects on meaning (as will be discussed in §6). In light of this ongoing conceptual debate, it is necessary to consider whether we should think of reference point information as intruding in some way on the semantic contents of

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<sup>18</sup>However, they remain neutral about the pragmatic mechanism at work:

Note that the present analysis makes no assumptions about the existence of Gricean norms, or, more generally, about the communication of informative intent ... The analysis simply points out that, when a certain kind of regularity in speaking behavior exists, a particular kind of inference will typically be warranted, norms and intentions aside. Whether and how listeners, in drawing such inferences, consider informative intentions or conversational norms is a question for further research to address. (Sher and McKenzie 2006, 470, n. 3)

In fact, I believe a broadly Gricean analysis may well be possible; but this is a topic for another day.

attribute frames; this will be the topic of the next three sections. Ultimately, though, I will argue that we should *not*, and that the case study of attribute framing thus supports a relatively *minimal* conception of semantics.

## 4. Sentence meaning

### 4.1. Standing meaning

An expression's standing meaning can be thought of as the meaning it possesses purely as a matter of linguistic convention. For example, the standing meaning of the noun 'glass' may be thought of as a function mapping that expression to the set of all things that are *glasses*; and the standing meaning of the adjective 'full' can be thought of as a function mapping the expression to the set of *full* entities. I take it that any theory which recognises semantic meaning at all will classify simple expressions' standing meanings as being semantic. Slightly more controversially, the standing meaning of a complex expression, like a sentence, can be thought of as a function of the standing meanings of its constituents, together with their manner of combination, as governed by compositional rules. As such, standing meaning is entirely context-invariant, remaining constant across all occasions of use.<sup>19</sup>

I think it is pretty clear that reference point information could *not* be part of the standing meaning of an attribute frame. This is straightforwardly demonstrated by the fact that reference point information is defeasible in a way that standing meaning is not. For example, an utterance of (5) would be perfectly felicitous, despite the second clause explicitly denying the reference point information associated with (1).

(5) The player missed 40% of his shots but that was a pretty low proportion.

In contrast, (6) is clearly contradictory because the standing meaning of the second clause is incompatible with that of the first.

(6) The player missed 40% of his shots but he made 70% of them.

That said, there are more subtle hypotheses in the vicinity, which could enable reference point information to be *traced back to* standing meaning without needing to be invariant across all occasions of utterance. In the next two subsections I consider, in turn, whether reference point

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<sup>19</sup>As will be discussed below, semantics is often thought to involve the composition of at least some occasion-specific elements, and thus may not be entirely invariant across contexts of use.

information could arise from *overt indexicality* or the presence of *covert variables*.

#### 4.2. Overt indexicality

The first option to consider is that expressions like ‘full’, ‘empty’, ‘make’, and ‘miss’ are broadly indexical, similarly to ‘I’, ‘you’, ‘here’, and a range of others. What is distinctive about these expressions is that their standing meanings include occasion-specific components, which allow them to refer to different entities on different occasions.<sup>20</sup> The standing meaning of ‘you’, for example, might be something like *the speaker’s addressee*, which makes essential appeal to a particular individual in the utterance situation. Occasion-sensitive expressions have standardly been taken to contribute their referents to the semantic contents of uttered sentences that contain them.<sup>21</sup> So, for example, what ‘you’ contributes to the semantic content of ‘You missed!’, as uttered on a particular occasion, is the individual to whom the utterance is addressed on that occasion.

I don’t think this kind of overtly indexical analysis will work for the expressions we are interested in. Take, for example, the expression ‘miss’. If we were to capture reference point information by treating ‘miss’ as an occasion-sensitive expression, its standing meaning would need to be something like ‘miss more than the reference point’. Recall, though, that since standing meaning is indefeasible, ‘miss’ would have to appeal to an occasion-specific reference point across *all* uses;<sup>22</sup> in the same way, ‘you’ *always* means *the speaker’s addressee*. This is implausible for ‘miss’, as illustrated by a counterexample like (7):

(7) The player missed his shot because he was distracted by the flashing cameras.

I take it that there is no sense in which ‘missed’ in (7) appeals to a reference point. Similar reasoning extends to other pairs of expressions substituted across attribute frames.

#### 4.3. Covert variables

Even if expressions like ‘full’, ‘empty’, ‘make’, and ‘miss’ are not themselves occasion-sensitive, it remains possible that attribute frames, taken as

<sup>20</sup>I use ‘occasion-specific’ here, rather than the more familiar ‘context-dependent’ or ‘context-sensitive’, in order to remain neutral on the question of whether the referents of indexicals are constitutively determined by the *context* or by *speaker intentions*. For further discussion of this issue see (Neale 2016).

<sup>21</sup>However, see (Harris *forthcoming*) for a different approach.

<sup>22</sup>Or, at least, all *literal* uses; a speaker might use ‘miss’ ironically or metaphorically but I will leave such non-literal uses aside for now.

complex expressions, do contain some sort of reference point parameter. Here I draw specifically on an approach developed by Stanley and others (King and Stanley 2005; Stanley 2002, 2005; Stanley and Szabo 2000). These theorists posit covert variables in sentences' logical forms, which get saturated by occasion-specific values. Thus, for example, the underlying logical form of a sentence like (8) can be represented roughly as in (8a), where 'x' acts as a placeholder for a contextually salient comparison class (say, 14 year olds, or basketball players).

(8) John is tall.

(8a) John is tall *considered relative to x*.

Somewhat similarly to cases of overt indexicality, the sentence's standing meaning is held to contain a variable in need of saturation (the difference is just that the variable does not appear at the level of lexical meaning but at the level of logical form). As before, then, the sentence's *semantic* content is standardly taken to depend on the comparison class, despite the fact that this will vary from occasion to occasion. Imagine, for example, a conversation concerned with John *qua* basketball player. An utterance of (8) in this context could be analysed as follows:

(8b) John is tall *for a basketball player*.

On the view being discussed, this would count as its semantic content.

Applying the idea to a sentence like (2), we could characterise its logical form as follows:

(2b) The player missed 40% of his shots, *considered relative to x*.

For each utterance of (2), the semantic content would then depend on the value of the comparison class denoted by 'x' (which might be, say, all shooting guards, NBA players, or residents of New York, depending on the situation).

The problem with this analysis is that it does not yet explain why the player should be thought of as having missed a *large* proportion of shots relative to the relevant comparison class. To capture that, we would need some additional restriction of the comparison class, requiring it to be one that renders 40% a relatively large proportion of shots to miss. The Stanley-style account provides no obvious motivation for this further restriction. (Moreover, once we *do* add it – presumably by appealing to the effects of the verb phrase – it is unclear

whether that account would still have any substantive explanatory role to play).<sup>23</sup>

## 5. Free effects

In the previous section I provided reasons for denying that reference point information can be traced back to standing meanings. In this section I consider how it might, instead, intrude *freely* on semantic content.<sup>24</sup> There are two components of this question: the first concerns whether reference point information is a *free* effect, in the sense of its being triggered not by standing meaning but by some wider factor(s). I take it that it must be (and in §6 I will consider the possibility that the triggering factor is a *convention of language use*). The second component concerns whether reference point information affects *semantic* content rather than some other kind of content. This raises more delicate issues. The claim I am interested in exploring is that the contents *directly communicated* by utterances are (often or always) freely enriched, as contextualists about meaning have argued (Bach 1994; Carston 2002; Recanati 2004, 2010; Sperber and Wilson 1995).<sup>25 26</sup> It is important to note, though, that on many contextualist accounts, such contents would *not* be described as ‘semantic’, precisely because they are freely enriched. Instead, the label ‘semantic’ is often reserved for something closer to standing meaning (which, however, is often taken to be sub-propositional or theoretically irrelevant). In contrast, the directly communicated content is described variously as ‘what is said’ (Recanati 2004, 2010), ‘explicature’ (Carston 2002; Sperber and Wilson 1995), or ‘implicature’ (Bach 1994).<sup>27</sup> Given these terminological choices, the notion of free intrusion on semantic meaning risks becoming incoherent.

<sup>23</sup>There are other problems too: it may be difficult to explain the *defeasibility* of the reference point information, as well as the intuition that attribute frames express *complete* meanings, with determinate truth-values, independently of that information. For more fundamental criticisms of the wider strategy of positing covert variables, see (Borg 2012; Collins 2007; Neale 2007; Recanati 2004).

<sup>24</sup>On an alternative relativist view, reference point information might be understood as freely affecting *truth-conditions* without affecting *content*. For general arguments in favour of a relativist approach, see (Lasnik 2005; MacFarlane 2014; Predelli 2005). Although I will focus on a contextualism-inspired analysis here, the same considerations would apply equally to a relativist version.

<sup>25</sup>I take ‘enrichment’ to include both the modulation of standing meanings of uttered expressions and the addition of components that do not correspond to parts of the uttered sentence (so called ‘unarticulated constituents’ [Perry and Blackburn 1986]).

<sup>26</sup>I will remain neutral throughout as to whether ‘directly communicated’ contents must be *intended* by the speaker, *inferred* by the hearer, or both. I will also abstract away from debates about precisely how directly communicated contents should be individuated and distinguished from indirectly communicated contents; I will work with a more intuitive distinction here. For further critical discussion, see (Borg 2016).

<sup>27</sup>Note that this is ‘implic-i-ture’ with an ‘i’ not implic-a-ture with an ‘a’.



On the other hand, as discussed above, semantics has standardly concerned itself with complete truth-conditional contents that accord with what speakers ‘express’, ‘say’, ‘assert’, or ‘directly communicate’ (I will use these terms interchangeably here).<sup>28</sup> On that understanding, contextualists must be understood as allowing free effects on semantic contents. Since my aim here is to consider, reasonably comprehensively, the various possible senses in which reference point information might be considered to have semantic implications, I want to allow for now the possibility that directly communicated contents should count as semantic.<sup>29</sup> The proposal I am addressing, then, is one which would map the semantics-pragmatics distinction to a distinction between two varieties of enriched meaning – one that is directly communicated and another that is indirectly communicated.

The first point to note, in assessing this proposal, is that there will often be little motivation for analysing reference point information as *directly* communicated anyway. Consider, for example, the following exchange:

A: How was Federico’s shooting last season?

B: He missed 40% of his shots.

I think B’s utterance conveys only *indirectly* that Federico missed a relatively large proportion of his shots. Imagine, for example, that 40% is actually well below the average proportion of shots missed. I don’t believe there is any temptation at all to say B’s utterance would be *false*, even if it constitutes a rather misleading way of describing the player’s performance. If correct, this suggests that the reference point information is not directly communicated in this exchange (nor in many others like it).

That said, I want to allow that there *could* be cases in which reference point information is directly communicated. This seems somewhat more plausible, for example, in the following exchange:

C: How could they bench Federico?

D: He missed 40% of his shots.

Here we might gloss D’s utterance as communicating directly that Federico missed a relatively large proportion of his shots. After all, the utterance

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<sup>28</sup>Even semantic minimalists, who drop the requirement for semantic contents to accord with what is intuitively said, still tend to think of semantic contents as needing to be complete, truth-conditional contents; see, for example, (Borg 2012).

<sup>29</sup>However, I will end up using the case study of attribute framing to argue against this view in §7.

can only be understood as constituting a relevant reply to C's question if it is being offered as an *indirect explanation* of why the player was benched; and the explanation only makes sense once we assume that 40% represents a *relatively large* proportion of shots to miss. This content must have been communicated already, and more directly.<sup>30</sup>

Given this gloss of the exchange above, we might characterise the enriched content of D's utterance as follows:

(9) He missed *the relatively large proportion of* 40% of his shots.<sup>31</sup>

Should we think of (9) as being the semantic content of D's utterance of 'He missed 40% of his shots'? In §7 I will return to this question and argue that the case study of attribute framing speaks against such an analysis. While I want to allow that, in principle, reference point information *could* sometimes be classified as 'semantic' within the framework under consideration, I will suggest that this classification cannot be motivated by the framing data, which instead supports a more minimal conception of semantics.

For now, I simply note that treating reference point information as semantic in cases where it is directly communicated, but as non-semantic in cases where it is only *indirectly* communicated, would require appeal to two separate mechanisms of meaning. The resulting account is therefore *prima facie* less parsimonious than a univocal account, which treats reference point information as thoroughly non-semantic (though perhaps conveyable with greater or lesser *strength*, depending on wider considerations like relevance).

In the next section I move on to consider an alternative approach, which would treat all reference point information as semantic, on the basis of its being *conventional*.

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<sup>30</sup>It can be understood as resulting from the reinforcing effects of the speaker's choice of frame and wider considerations of *relevance*. Note how, in the following version of the exchange, D's reply is less felicitous:

C: How could they bench Federico?

D: He made 60% of his shots.

This is because considerations of frame and relevance pull in different directions, making it less clear that D is saying that Federico missed a relatively large proportion of his shots. The point, then, is that reference point information could potentially be treated as semantic in *some* contexts, where it is reinforced by wider factors.

<sup>31</sup>I formulate it in this way, with the reference point information modifying the proportion, in order to ensure that it would meet certain criteria contextualists have proposed for directly communicated contents. These include, for example, requirements for explicatures to be 'developments' or 'expansions' of standing meaning (Sperber and Wilson 1995, 182); and to modulate only *part* of that meaning (Carston and Hall 2012).

## 6. Conventions

Some theories have sought to accommodate within semantics all kinds of conventional linguistic phenomena (although these need not contribute to truth-conditional content). On these views, the semantics-pragmatics boundary lies at the interface between conventional and non-conventional determinants of meaning. I will consider two possible conventional determinants of reference point information: presupposition and 'bias'.<sup>32</sup>

### 6.1. Presupposition

I will focus on presuppositions that are triggered *linguistically*.<sup>33</sup> For illustration, in sentence (10):

(10) Federico regrets missing the shot.

the expression, 'regret', triggers the following presupposition:

(10a) Federico missed the shot.

Although this is intuitively not part of what is asserted when (10) is uttered, it is a precondition for the utterance being felicitous. Could attribute frames trigger reference point information in a similar way?<sup>34</sup> The idea would be that (2), for example, *presupposes* (2a) (both reproduced below).<sup>35</sup>

(2) The player missed 40% of his shots.

(2a) The player missed *a relatively large proportion of his shots*.

I think further investigation shows such a presuppositional analysis to be implausible. This is because the reference point information fails to exhibit characteristic projection behaviour.<sup>36</sup> Presuppositions typically persist

<sup>32</sup>Another view, developed by Lepore and Stone (2015), is that many ostensibly pragmatic phenomena are actually the result of ambiguities between conventional meanings. I will not address the possibility that attribute frames are simply ambiguous between interpretations which do or don't include the reference point information. I take this to be *prima facie* implausible (and further undermined by the asymmetrical entailment relation that holds between the two contents).

<sup>33</sup>On some theories, presupposition is taken to be a pragmatic phenomenon (Simons 2006; Stalnaker 1999). However, I set these aside since they would not involve semantic intrusion in the sense being discussed here.

<sup>34</sup>There is, after all, a precedent for such a view in the literature, since Ingram and Moxey (2011) explicitly link their 'presupposition denial' account of negative natural language quantifiers (like 'few') to the reference point hypothesis.

<sup>35</sup>Note that whereas the presupposition in (10a) is triggered by the simple expression 'regret', in attribute framing cases any presupposition would have to attach to a more complex construction (like 'missed [some proportion of] his shots'). I will assume, though, that this need not be an insurmountable obstacle.

<sup>36</sup>The ease with which the information can be denied or defeated also provides some further support for the same conclusion.

when the asserted content is embedded in various syntactic environments, including negations, questions, possibility modals, and conditionals. For example, the presupposed content in (10a) clearly continues to project from (11) to (14):

- (11) Federico doesn't regret missing the shot.
- (12) Does Federico regret missing the shot?
- (13) Maybe Federico regrets missing the shot.
- (14) If Federico regrets missing the shot, he'll be motivated to keep practicing.

However, it is far less clear that the reference point information in (2a) projects from (15) to (18):

- (15) The player didn't miss 40% of his shots.
- (16) Did the player miss 40% of his shots?
- (17) Maybe the player missed 40% of his shots.
- (18) If the player missed 40% of his shots, he'll be motivated to keep practicing.<sup>37</sup>

Given the projection data, I think it is implausible that reference point information itself is presupposed by attribute frames. Nevertheless, there is something suggestive about a presuppositional analysis: specifically, reference point information is often 'backgrounded' in a similar manner as information that is presupposed.<sup>38</sup> As McKenzie and others suggest, attribute frames appear to 'leak' information about the wider utterance context in a somehow underhand manner. In the next subsection I consider a view that would capture this property in a slightly different way.<sup>39</sup>

<sup>37</sup>Note that the reference point information survives embedding within the *antecedent* of this conditional; indeed, it grounds the explanatory connection between the antecedent and the consequent. However, it does not project from the *whole* conditional, as (10a) does from (14). In other words, (18) does not entail that the player *did* miss a relatively large proportion of his shots, whereas (14) *does* entail that Federico missed the shot. Moreover, we should not assume that the persistence of the information within the antecedent of a conditional is sufficient to demonstrate that the information is *semantic* rather than pragmatic; for further discussion, see (Borg 2009) and (Davis 2016, §4.6).

<sup>38</sup>This point is further supported by the fact that reference point information seems to pass the 'hey, wait a minute' test proposed by Von Stechow (2004) – or at least the 'cautious assent' test described by Predelli (2013, 71). For example, one might felicitously respond to an utterance of (2) with 'Hey, wait a minute, 40% is a small proportion to miss'; or, at least, 'Yes, but 40% is a small proportion to miss'.

<sup>39</sup>In fact, though, I think it is ultimately best captured by noticing that the reference point information presupposes the existence of a salient reference point (rather than the frame presupposing the reference point information). For example, (2a) – 'The player missed a relatively large proportion of his shots' – presupposes that there exists a salient reference point relative to which the player's performance is being judged. Therefore, wherever an attribute frame conveys reference point information, it might be understood as *indirectly presupposing* the existence of a reference point.

## 6.2. Bias

Predelli (2013) argues that some expressions have conventional ‘biases’, which constrain the situations in which they may be used. To take one of Predelli’s examples, the expression ‘hurray’ may only be used in situations in which (roughly speaking) the agent has a favourable attitude towards the state of affairs being described. Conversely, ‘alas’ may only be used where the agent has an *unfavourable* attitude.<sup>40</sup> These constraints are not taken to affect the truth or falsity of sentences in which the expressions appear, like (19) and (20) below (borrowed from [Predelli 2013, 72–73]):

(19) Hurray, our frailty is the cause, not we.

(20) Alas, our frailty is the cause, not we.

Predelli takes (19) and (20) to be logically equivalent if used in the same context. Their shared truth-conditional content is just that *our frailty is the cause, not we*. However, due to their different (indeed opposing) biases, they may only be uttered if the speaker is, respectively, happy or unhappy about that fact.

Applying Predelli’s framework to attribute framing, let’s suppose that it is conventional for speakers to select frames in accordance with the reference point hypothesis.<sup>41</sup> In other words, it would be conventional for speakers to use (1) where the player is believed to have made a relatively large proportion of his shots, and (2) where the player is believed to have *missed* a relatively large proportion.<sup>42</sup> Correspondingly, competent language users who are sensitive to this convention can be expected to infer the reference point information. In sum, the fact that (2) is uttered provides at least some *prima facie* evidence that the situation is as described by (2a):

(2) The player missed 40% of his shots.

(2a) The player missed *a relatively large proportion of his shots*.

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<sup>40</sup>In fact, the biases of ‘alas’ and ‘hurray’ are held to exhaust their meaning entirely; such expressions are thus ‘purely biased’ (Predelli 2013, 67). In these examples, the relevant contextual parameter is the speaker’s attitude. However, in principle, the parameters invoked by biases could correspond to all kinds of contextual features.

<sup>41</sup>I will remain neutral on the question of whether the relevant convention would be a wholly *arbitrary* convention of language use (just happening to be a characteristic of English and a range of other languages), or whether it is linked to a more general human cognitive tendency to highlight what is relatively abundant.

<sup>42</sup>Again, whereas the biases Predelli considers attach to relatively simple expressions (like ‘hurray’ and ‘alas’), in attribute framing cases they would have to attach to more complex constructions (see footnote 35 above).

Note that the speaker's use of (2) need not *fully constrain* the situation to be this way (in contrast with sincere uses of 'hurray' and 'alas', which seem to impose absolute requirements on the speaker's attitude). Instead, the reference point information is *defeasible*: it may be overridden by counter-evidence (for example, if the hearer happened to know that the average player actually missed 60%). Likewise, as discussed in §3, strictly speaking we should think of reference point information as being made *more probable* by the speaker's use of frame, other things being equal, rather than hearers always inferring it absolutely.

The same goes, however, for other cases Predelli presents as 'biases'. Take, for example, the co-extensional terms, 'belly button', 'navel', and 'umbilicus' (Predelli 2013, 81). These certainly *tend* to be used when addressing children, adults, and medical professionals, respectively, and therefore provide some indication of the identity of the addressee (as Predelli suggests). However, it is still sensible (if less felicitous) to use them in addressing different audiences. Perhaps, then, we can think of expressions' biases as affecting the *probability* of different situations obtaining, other things being equal, rather than always *requiring* a particular situation to obtain.

In principle, this refinement could allow reference point information to be accommodated as a 'bias' within Predelli's expansive notion of semantics. However, it is unclear what this would buy us. In particular, it is not obvious that we need to appeal to 'biases' in order to explain how utterances make it more or less probable that certain situations obtain. This already falls out naturally from various pragmatic theories, including a standard Gricean framework: for example, in one of Grice's examples a reviewer's utterance of 'Miss X produced a series of sounds that corresponded closely with the score of "Home Sweet Home"' makes it probable that her singing performance was poor (or, as Grice puts it 'suffered from some hideous defect' [Grice 1989, 37]). In the final section of the paper, I will suggest that the case study of attribute framing speaks more generally against the inclusion of 'biases' within semantics.<sup>43</sup>

## 7. The semantics-pragmatics divide

To summarise the preceding discussion, I argued in §4 that the reference point information conveyed by attribute frames cannot be traced back to standing meaning. However, I acknowledged that it could potentially be

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<sup>43</sup>Indeed, I believe that the reference point information conveyed by attribute frames may be analysable similarly to the example from Grice, as a Manner-based implicature. However, this is not something I will attempt to argue for here.

considered broadly 'semantic' in two other respects. First, as discussed in §5, reference point information might be held to intrude on what is *directly communicated*. Second, assuming reference point information depends on a *conventional* aspect of language use, it might be analysed as a semantic 'bias', as discussed in §6. In this final section, I will suggest that the case study of framing in fact supports a narrower conception of semantics. I will not offer a knock-down argument against the more expansive alternatives. My point will be that, whatever other motivations for these views exist, the framing data provide no *additional* support for widening the scope of semantics.

Recall that the puzzle we face with respect to attribute framing effects is to explain why pairs of frames, which predicate the same property of an entity, generate systematically different judgements among hearers. The solution offered by the reference point hypothesis appeals to the opposing information alternative frames convey about the entity's relation to a reference point. Yet, as we saw, reference point information cannot be traced back to standing meaning; at that level, alternative frames remain equivalent. Instead, reference point information arises from how frames are *used*. In other words, the reference point hypothesis depends on a distinction being drawn between attribute frames' standing meanings and what they communicate on particular occasions of use. Indeed, framing effects are especially puzzling because both of those meanings can be present simultaneously, pulling us in two directions at once. Given this analysis, an obvious way of bringing the semantics-pragmatics distinction to bear on the phenomenon of framing would be to map it to the distinction between standing sentence meaning and enriched communicated meaning. That would result in our adopting a relatively minimal conception of semantics, as being restricted to the *standing meanings* of simple and complex expressions. On that basis, we can explain how pairs of attribute frames express equivalent semantic meanings *at the same time as* pragmatically conveying divergent reference point information.

In contrast, opting for a broad conception of semantics would result in the distinction between reference point information and standing meaning being obscured, in one of two ways. First, if semantics were understood as capturing what a speaker intuitively 'says' we would end up lumping together aspects of meaning arising from standing meanings with aspects which depend on contextual factors. Alternatively, if semantics were held to capture all conventional effects, we would end up lumping together the conventional *meaning* of linguistic expressions with how they are conventionally *used*. Drawing the semantics-pragmatics

boundary in either of these ways risks concealing the distinction that is of primary importance in explaining framing effects – namely, the distinction between sentences’ standing meanings (which are fixed and absolute) and patterns of language use (which are defeasible and probabilistic).<sup>44</sup>

In fact, I suggest that the phenomenon of attribute framing represents a clear empirical application for the semantics-pragmatics divide and, as such, gives that conceptual distinction a valuable explanatory role. This brings us to a more general point. The question of where to locate the boundary between semantics and pragmatics might at first appear to be a purely terminological one. However, I believe this appearance obscures a substantive debate. After all, if our conceptions of semantics and pragmatics are to have genuine explanatory value, they must track real-world psychological or sociological phenomena. I suggest, then, that the empirical case study of framing effects can be used to inform the conceptual distinction between semantics and pragmatics – in particular, by demonstrating the value of a relatively minimal notion of semantics, to be held apart from a range of wider pragmatic effects on utterance interpretation. Since the proposed distinction between standing sentence meaning and enriched communicated meaning also tracks key aspects of how philosophers have traditionally understood the difference between semantics and pragmatics (the former being constant and fixed by linguistic rules, while the latter is fluid and freely affected by the vagaries of human interaction) this seems like a good result.

In closing, it must of course be recognised that the case study of framing furnishes us with only one piece of evidence for a minimal conception of semantics. There are undoubtedly many other applications for the concepts of semantics and pragmatics. Therefore, it could be that consideration of these other purposes might ultimately favour a different, potentially more expansive, conception. That said, I hope at least to have indicated how further philosophical investigation of empirical phenomena like framing effects can fruitfully inform our conceptual distinction between semantics and pragmatics.

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<sup>44</sup>Of course, it remains open to any expansive conception of semantics to subdivide the category of semantics in order to distinguish between standing meaning and other ostensibly semantic phenomena. However, that would at least require an additional step; and it would still imply that the more fundamental distinction lay elsewhere.



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## References

- Austin, J. L. 1975. *How to Do Things with Words*. 2nd ed. Edited by J. O. Urmson and M. Sbisà. Cambridge, MA: Harvard University Press.
- Bach, K. 1994. "Conversational Implicature." *Mind & Language* 9 (2): 124–162. doi:10.1111/j.1468-0017.1994.tb00220x.
- Bach, K. 2001. "You Don't Say?" *Synthese* 128 (1/2): 15–44. doi:10.1023/A:1010353722852.
- Bach, K. 2006. "The Excluded Middle: Semantic Minimalism Without Minimal Propositions." *Philosophy and Phenomenological Research* 73 (2): 435–442.
- Borg, E. 2009. "On Three Theories of Implicature: Default Theory, Relevance Theory and Minimalism." *International Review of Pragmatics* 1 (1): 63–83. doi:10.1163/187731009X455848.
- Borg, E. 2012. *Pursuing Meaning*. Oxford: Oxford University Press.
- Borg, E. 2016. "Exploding Explicatures." *Mind & Language* 31 (3): 335–355. doi:10.1111/mila.12109.
- Carston, R. 2002. *Thoughts and Utterances: The Pragmatics of Explicit Communication*. Oxford: Blackwell.
- Carston, R., and A. Hall. 2012. "Implicature and Explicature." In *Cognitive Pragmatics*, edited by H.-J. Schmid, 47–84. Berlin: De Gruyter Mouton.
- Chick, C. F., V. F. Reyna, and J. C. Corbin. 2016. "Framing Effects Are Robust to Linguistic Disambiguation: A Critical Test of Contemporary Theory." *Journal of Experimental Psychology: Learning, Memory, and Cognition* 42 (2): 238–256. doi:10.1037/xlm0000158.
- Collins, J. 2007. "Syntax, More or Less." *Mind; A Quarterly Review of Psychology and Philosophy* 116 (464): 805–850.
- Davis, W. A. 2016. "Implicature." In *Oxford Handbooks Online*. doi:10.1093/oxfordhb/9780199935314.013.21.

- Fisher, S. A. 2019. "Reassessing Truth-Evaluability in the Minimalism-Contextualism Debate." *Synthese*, 1–18. doi:10.1007/s11229-019-02245-2.
- Geurts, B. 2013. "Alternatives in Framing and Decision Making." *Mind and Language* 28 (1): 1–19. doi:10.1111/mila.12005.
- Grice, H. P. 1989. *Studies in the Way of Words*. Cambridge, MA; London: Harvard University Press.
- Harris, D. forthcoming. "Semantics Without Semantic Content." *Mind & Language*.
- Honda, H., and K. Yamagishi. 2017. "Communicative Functions of Directional Verbal Probabilities: Speaker's Choice, Listener's Inference, and Reference Points." *Quarterly Journal of Experimental Psychology* 70 (10): 2141–2158. doi:10.1080/17470218.2016.1225779.
- Ingram, J., C. J. Hand, and L. M. Moxey. 2014. "Processing Inferences Drawn from the Logically Equivalent Frames *Half Full* and *Half Empty*." *Journal of Cognitive Psychology* 26 (7): 799–817. doi:10.1080/20445911.2014.956747.
- Ingram, J., and L. M. Moxey. 2011. "Complement Set Focus Without Explicit Quantity." *Journal of Cognitive Psychology* 23 (3): 383–400. doi:10.1080/20445911.2011.524202.
- Kennedy, C., and L. McNally. 2005. "Scale Structure, Degree Modification, and the Semantics of Gradable Predicates." *Language* 81 (2): 345–381. doi:10.1353/lan.2005.0071.
- King, J. C., and J. Stanley. 2005. "Semantics, Pragmatics, and the Role of Semantic Content." In *Semantics Versus Pragmatics*, edited by Z. G. Szabo, 111–164. Oxford: Oxford University Press.
- Lasersohn, P. 2005. "Context Dependence, Disagreement, and Predicates of Personal Taste." *Linguistics and Philosophy* 28 (6): 643–686. doi:10.1007/s10988-005-0596-x.
- Lehrer, A. 1985. "Markedness and Antonymy." *Journal of Linguistics* 21 (2): 397–429. doi:10.1017/S002222670001032X.
- Leong, L. M., C. R. M. McKenzie, S. Sher, and J. Müller-Trede. 2017. "The Role of Inference in Attribute Framing Effects." *Journal of Behavioral Decision Making* 30 (5): 1147–1156. doi:10.1002/bdm.2030.
- Lepore, E., and M. Stone. 2015. *Imagination and Convention: Distinguishing Grammar and Inference in Language*. Oxford: Oxford University Press.
- Levin, I. P. 1987. "Associative Effects of Information Framing." *Bulletin of the Psychonomic Society* 25 (2): 85–86.
- Levin, I. P., and G. J. Gaeth. 1988. "How Consumers Are Affected by the Framing of Attribute Information Before and After Consuming the Product." *Journal of Consumer Research* 15 (3): 374.
- Levin, I. P., S. L. Schneider, and G. J. Gaeth. 1998. "All Frames Are Not Created Equal: A Typology and Critical Analysis of Framing Effects." *Organizational Behavior and Human Decision Processes* 76 (2): 149–188.
- MacFarlane, J. 2014. *Assessment Sensitivity: Relative Truth and Its Applications*. Oxford: Oxford University Press.
- Mandel, D. R. 2014. "Do Framing Effects Reveal Irrational Choice?" *Journal of Experimental Psychology: General* 143 (3): 1185–1198. doi:10.1037/a0034207.
- McKenzie, C. R. M., and J. D. Nelson. 2003. "What a Speaker's Choice of Frame Reveals: Reference Points, Frame Selection, and Framing Effects." *Psychonomic Bulletin & Review: A Journal of the Psychonomic Society, Inc* 10 (3): 596–602.

- Neale, S. 2007. "On Location." In *Essays on the Philosophy of John Perry*, edited by M. O'Rourke, and C. Washington, 251–393. Cambridge, MA: MIT Press.
- Neale, S. 2016. "Silent Reference." In *Meanings and Other Things: Essays in Honor of Stephen Schiffer*, edited by G. Ostertag, 229–344. Oxford: Oxford University Press.
- Perry, J., and Simon Blackburn. 1986. "Thought Without Representation." *Aristotelian Society Supplementary Volume* 60: 137–166.
- Predelli, S. 2005. *Contexts: Meaning, Truth, and the Use of Language*. Oxford: Clarendon Press.
- Predelli, S. 2013. *Meaning Without Truth*. Oxford: Oxford University Press.
- Recanati, F. 2004. *Literal Meaning*. Cambridge: Cambridge University Press.
- Recanati, F. 2010. *Truth-Conditional Pragmatics*. Oxford: Oxford University Press.
- Sher, S., and C. R. M. McKenzie. 2006. "Information Leakage from Logically Equivalent Frames." *Cognition* 101 (3): 467–494. doi:10.1016/j.cognition.2005.11.001.
- Sher, S., and C. R. M. McKenzie. 2008. "Framing Effects and Rationality." In *The Probabilistic Mind: Prospects for Bayesian Cognitive Science*, edited by N. Chater and M. Oaksford, 79–96. Oxford: Oxford University Press.
- Sher, S., and C. R. M. McKenzie. 2011. "Levels of Information: A Framing Hierarchy." In *Perspectives on Framing*, edited by G. Keren, 35–63. Abingdon, Oxfordshire; New York: Psychology Press.
- Simons, M. 2006. "Foundational Issues in Presupposition." *Philosophy Compass* 1 (4): 357–372. doi:10.1111/j.1747-9991.2006.00028.x.
- Sperber, D., and D. Wilson. 1995. *Relevance: Communication and Cognition*. 2nd ed. Oxford: Blackwell.
- Stalnaker, R. C. 1999. *Context and Content: Essays on Intentionality in Speech and Thought*. Oxford: Oxford University Press.
- Stanley, J. 2002. "Making It Articulated." *Mind & Language* 17 (1–2): 149–168. doi:10.1111/1468-0017.00193.
- Stanley, J. 2005. "Semantics in Context." In *Contextualism in Philosophy: Knowledge, Meaning, and Truth*, edited by G. Preyer, and G. Peter, 221–254. Oxford: Oxford University Press.
- Stanley, J., and Z. G. Szabo. 2000. "On Quantifier Domain Restriction." *Mind and Language* 15 (2): 219–261.
- Teigen, K. H., and K. I. Karevold. 2005. "Looking Back Versus Looking Ahead: Framing of Time and Work at Different Stages of a Project." *Journal of Behavioral Decision Making* 18 (4): 229–246. doi:10.1002/bdm.502.
- Travis, C. 2008. *Occasion-Sensitivity: Selected Essays*. Oxford: Oxford University Press.
- Tversky, A., and D. Kahneman. 1981. "The Framing of Decisions and the Psychology of Choice." *Science* 211 (4481): 453–458.
- Tversky, A., and D. Kahneman. 1986. "Rational Choice and the Framing of Decisions." *The Journal of Business* 59: S251–S278.
- Verheyen, S., S. Dewil, and P. Égré. 2018. "Subjectivity in Gradable Adjectives: The Case of Tall and Heavy." *Mind & Language* 33 (5): 460–479. doi:10.1111/mila.12184.
- Von Fintel, K. 2004. "Would You Believe It? The King of France Is Back! Presuppositions and Truth-Value Intuitions." In *Descriptions and Beyond*, Vol. 269, edited by A. Bezuidenhout, and M. Reimer, 315–341. Oxford: Oxford University Press.